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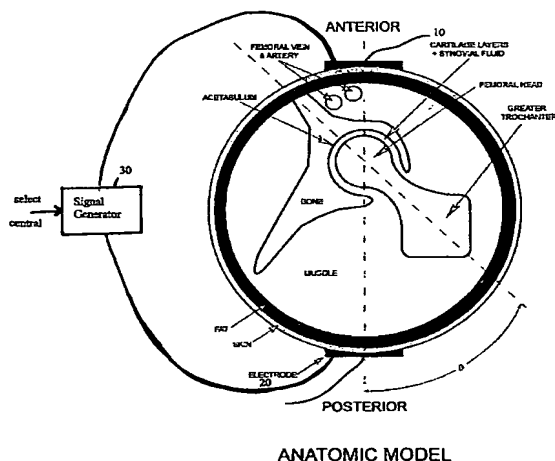
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(54) Title: METHOD AND DEVICE FOR TREATING OSTEOARTHRITIS AND CARTILAGE DISEASE, DEFECTS, AND INJURIES IN THE HUMAN HIP



(57) Abstract: A method of determining the voltage and current required for the application of specific and selective electric and electromagnetic signals to diseased articular cartilage in the treatment of osteoarthritis, cartilage defects due to trauma or sports injury, or used as an adjunct with other therapies (cell transplantation, tissue-engineered scaffold, growth factors, etc.) for treating cartilage defects in the human hip joint and a device for delivering such signals to a patient's hip. Anatomic, analytical, and planar circuit models are developed to determine the impedances, conductivities, and current flows in the human hip joint and its surrounding soft tissues and skin that are required to produce a 20mV/cm electric field in the synovium and articular cartilage of the human hip. The voltage of the signal applied to the surface electrodes (20) or to a coil(s) or solenoid is varied based on the size of the hip joint; larger hip joints require larger voltages to generate the effective electric field.

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